YERSHOV, V.A.; PAGNUYEVA, I.A.

Determination of the maximum permissible phosphorus and sulfur content in the raw materials used in the production of calcium carbide. Khim.prom. no.3:182-185 Mr '61. (MIRA 14:3)
(Calcium carbide) (Phosphorus—Analysis)
(Sulfur—Analysis)

YERSHOV, V.A.; PAGNUYEVA, I.A.

Transfer of sulfur compounds from batch to calcium carbide during its production in an electric furnace. Zhur.prikl.khim. 34 no.9:1901-1907 S '61. (MIRA 14:9)

(Calcium carbide) (Sulfur compounds)

YERSHOV, V.A.; PAGNUYEVA, I.A.

Sulfur compounds passing from a batch to calcium carbide in the course of its production in an electric furnace. Zhur.prikl.khim. 34 no.10:2159-2163 O '61. (MIRA 14:11)
(Sulfur compounds) (Calcium carbide)

YERSHOV, V.A.; KRYLOV, V.N.

Transfer of phsophorus compounds from charges to calcium carbide.
Zhur.prikl.khim. 35 no.7:1441-1448 Jl '62. (MIRA 15:8)
(Phosphorus compounds) (Calcium carbide)

YERSHOV, V. A.

Calculating the maximum capacity of calcium carbide. Khim. prom. no.3:237-238 Mr '63. (MIRA 16:4)

(Calcium carbide)

YERSHOV, V.A.

Admissible acetylene content of waste drains of acetylene manufacturing plants. Khim. prom. no.10:780-781 O '63.
(MIRA 17:6)

YERSHOV, V.A., inzh.

Reliability of thermal level protection systems in boiler drums. Energ. i elektrotekh. prom. no.4:15-17 O-D '65.
(MIRA 19:1)

YERSHOV, V.A.

KRIVTSOV, A.I. and V.A. YERSHOV. Geologicheskii ocherk [illegible] Cheliabinskogo raiona. Cheliabinsk, Cheliabinskoe obl. kn. izd-vo, 193 . 140, (2) p.
"Spisok ispol'zovannoi literatury": p. 140-[141].
DLC: QE315.K7

SO: IC, Soviet Geography, Part II, 1951, Unclassified

1. YERSHOV, V. A.

2. USSR (600)

4. Ural Mountains - Iron Ores

7. Explanatory note to the prognostic map base on the iron ore deposits in the Urals for 1944. (Abstract.) Izv.Glav.upr.geol.fon. no. 2, 1947

9. Monthly List of Russian Accessions, Library of Congress, March 1953, Unclassified.

YERSHOV, V.A

132-12-1/12

AUTHOR: Yershov, V.A.

TITLE: Geology in the Ukraine During Four Decades of Soviet Rule (Geologiya Ukrainy za chetyre desyatiletiya sovetskoy vlasti)

PERIODICAL: Razvedka i okhrana nedr, 1957, # 12, p 1-6 (USSR)

ABSTRACT: Geologic survey was started in the Ukraine in 1825 with the founding of the Corps of Mining Engineers and the All Russian Geologic Committee. During the subsequent 30 years the main stratigraphic mapping of the Ukrainian territory was completed. The second period of important geological work commenced after the October Revolution and lasted till the beginning of World War II. During the first decade of Soviet government the Geologic Committee USSR and the Ukrainian Geologic Committee continued their work by surveying the Donbass and Krivoy Rog areas. During the second decade, geologic surveying was carried out over the entire Ukraine, whereby mainly non-metallic deposits, such as limestone, dolomites, kaoline and other deposits were located. Iron and manganese ores, hard coal and coking coal deposits were discovered in the Donbass, vanadium ore in the Kerch area. In 1932, prospecting for crude oil was started with drilling operations. On the territory of the Ukrainian crystal-

Card 1/3

Geology in the Ukraine During Four Decades of Soviet Rule

line plateau were discovered deposits of piezoelectric crystals, ilmenite, phosphorite, graphite and other non-metallic resources. Reorganization of geologic research was carried out. The Geologic Committee was succeeded by the Main Geologic Prospecting Administration at the Supreme Soviet of National Economy (Glavnoye geologorazvedochnoye upravleniye pri vysshem sovete narodnogo khozyaystva) and subsequently the Committee of Geology at "Sovnarkom" USSR (Komitet po delam geologii pri Sovnarkome SSSR). In the Ukraine the Ukrainian Geologic Mining and Prospecting Trust (Ukrainskiy geologo-razvedochnyy trest) was founded, and subsequently became the Geologic Administration (Geologicheskoye upravleniye). In addition, a number of other prospecting organizations were founded in the Ukrainian SSR. A period of geologic prospecting activity started in 1947, at which time the work of geologic prospecting and scientific research centers was put on a broader basis. Deep oil drilling operations were carried out in the Romny, Borislav, Feodosiya and Kiyev areas. On page 3 is a table showing drilling activities conducted by the Ukrainian Geologic Administration during 1940-1956. After 1945, the Ukrainian Academy of Sciences found-

Geology in the Ukraine During Four Decades of Soviet Rule

ed the L'vov and Simferopol Institutes of Mineral Resources and 10 geologic high schools. Besides, geologists of central organizations of the USSR, such as VSEGEI, VIMSa, MGRI and others operate in the Ukrainian SSR. New deposits of iron ore, crude oil and other minerals were discovered by geophysical methods, and the geological structures of the Dnepr-Don depression and other regions were analyzed. Geologic mapping of the entire territory of the Ukrainian SSR on different scales was completed. As a result of systematic prospecting, nickel ore, chromites, bauxites, manganites, kaoline, titanium, zirconium and other rare metals were discovered by the Ukrainian Geologic Administration. Detailed studies of sliding geologic formations of Crimean coastal regions were conducted, and hydro-geologic questions were examined. New scientific methods are being successfully applied to geologic prospecting in the Ukrainian SSR. The article contains one table.

ASSOCIATION: Ukrainian Geological Administration (Ukrainskoye geolupravleniye)
AVAILABLE: Library of Congress
Card 3/3

AYZENVERG, D.Ye., geolog; BALUKHOVSKIY, N.F., geolog; BARTOSHEVSKIY, V.I., geolog; BASS, Yu.B., geolog; VADIMOV, N.T., geolog; GLADKIY, V.Ya., geolog; DIDKOVSKIY, V.Ya., geolog; YERSHOV, V.A., geolog; ZHUKOV, G.V., geolog; ZAMORIY, P.K., geolog; IVANTISHIN, M.N., geolog; KAPTARENKO-CHERNOUSOVA, O.K., geolog; KLIMENKO, V.Ya., geolog; KLUSHIN, V.I., geolog; KLYUSHNIKOV, M.N., geolog; KRASHENINNIKOVA, O.V., geolog; KUTSYBA, A.M., geolog; LAPCHIK, F.Ya., geolog; LICHAK, I.L., geolog; MAKUKHINA, A.A., geolog; MATVIYENKO, Ye.M., geolog; MEDYNA, V.S., geolog; MOLYAVKO, G.I., geolog; NAYDIN, D.P., geolog; NOVIK, Ye.O., geolog; POLOVKO, I.K., geolog; RODIONOV, S.P., geolog; SEMENENKO, N.P., akademik, geolog; SERGEYEV, A.D., geolog; SIROSHTAN, R.I., geolog; SLAVIN, V.I., geolog; SUKHAREVICH, P.P., geolog; TKACHUK, L.G., geolog; USENKO, I.S., geolog; USTIOVSKIY, Yu.B., geolog; TSAROVSKIY, I.D., geolog; SHUL'GA, P.L., geolog; YURK, Yu.Yu., geolog; YAMNICHENKO, I.M., geolog; ANTROPOV, P.Ya., glavnyy redaktor; FILIPPOVA, B.S., red. izd-va; GUKOVA, O.A., tekhn.red.

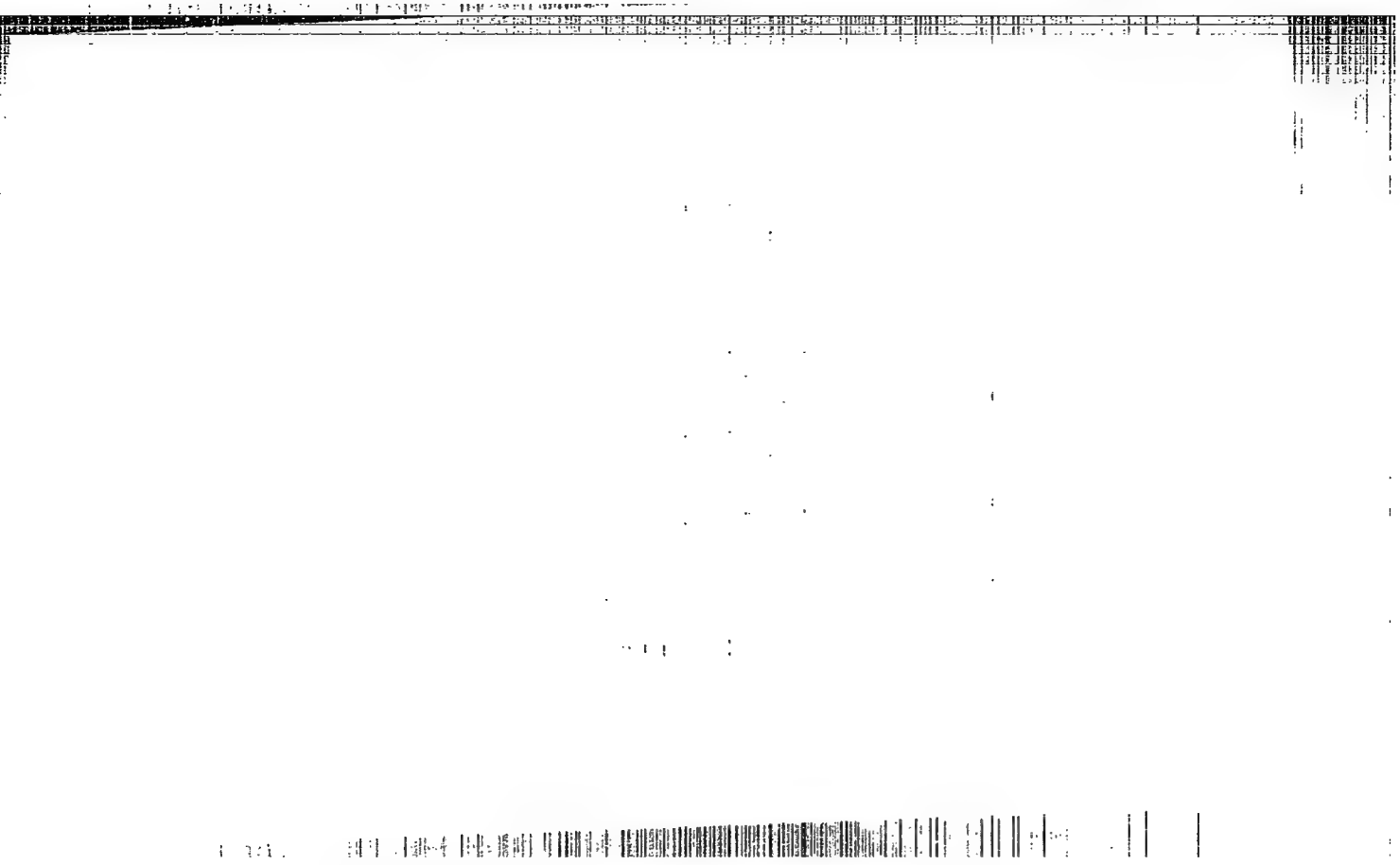
[Geology of the U.S.S.R.] Geologiia SSSR. Glav. red. P.IA.Antropov. Vol.5.[Ukrainian S.S.R., Moldavian S.S.R.] Ukrainskaia SSR, Moldavskaia SSR. Red. V.A. Ershov, N.P. Semenenko. Pt.1.[Geological description of the platform area] Geologicheskoe opisanie platformennoi chasti. Moskva, Gos. nauchno-tekhn.izd-vo lit-ry po geol. i okhrane nedr. 1958. 1000 p. [Supplement] Prilozhenila.

(Continued on next card)

AYZENVERG, D.Ye.---(continued) Card 2.
3 fold.maps (in portfolio) (MIRA 12:1)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye geologii i okhrany nedr. 2. Ukrainskoye geologicheskoye upravleniye Ministerstva geologii i okhrany nedr SSSR i Institut geologicheskikh nauk Akademii nauk USSR (for all except Antropov, Filippova, Gurova). 3.Glavnyy geolog Ukrainskogo geologicheskogo upravleniya (for Yershov). 4. AN Ukrainskoy SSR (for Semenenko).
(Ukraine--Geology) (Moldavia--Geology)

TITLE: Multi-coordinate switching system



ARKHANGEL'SKAYA, A.A.; YEFREMOV, V.A.; ROGINSKIY, V.N.

Principles of the construction of a unified system "multiplexing - switching." Elektrosviaz' 19 no.5:40-49 My '65. (MIRA 18:6)

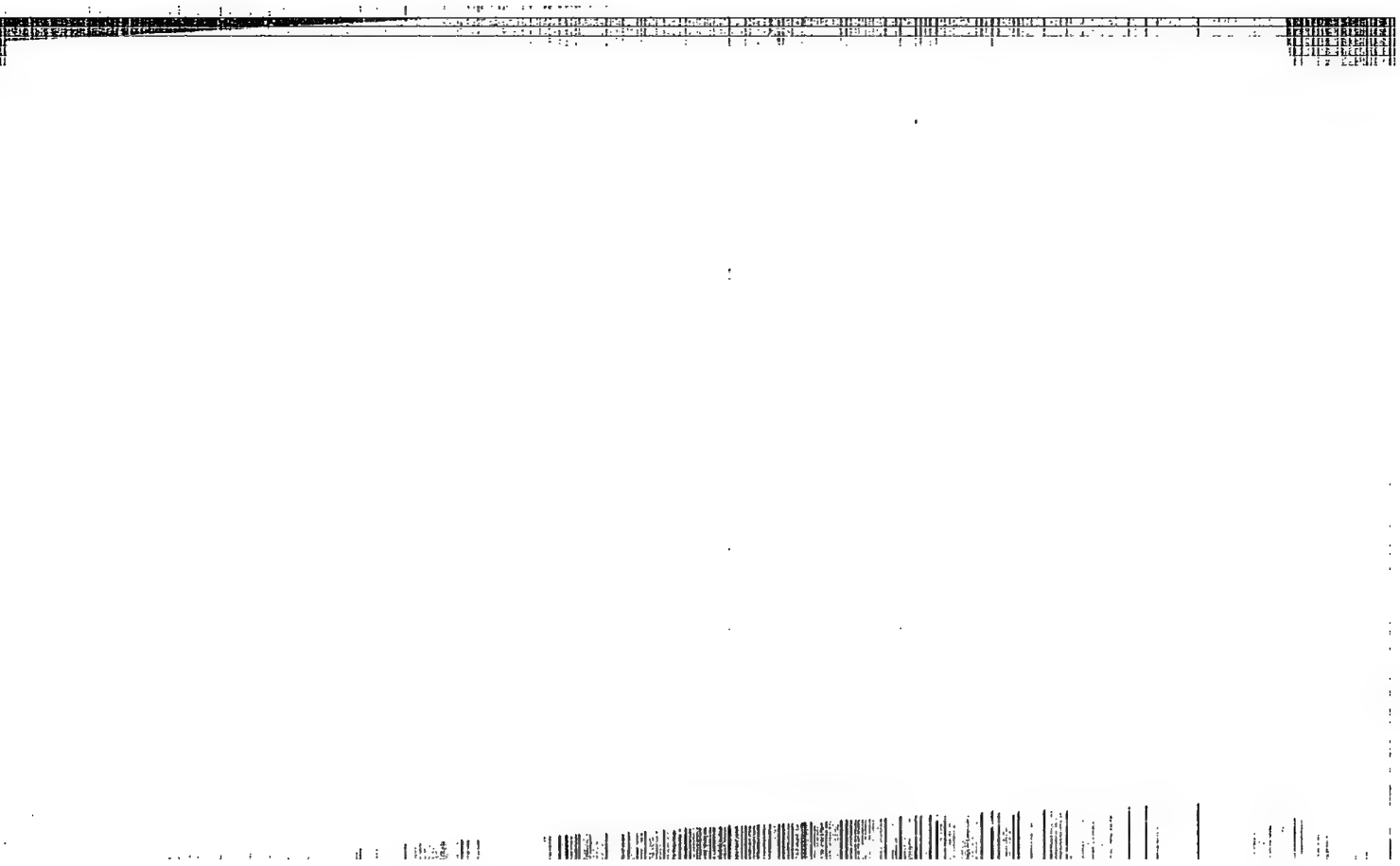
ARKHANGEL SKAYA, A.A.; YERSHOV, V.A.

Construction of switching systems for the commutation of pulse-time channels. Probl. perad. inform. no.12:95-101 '63. (MIRA 17:10)

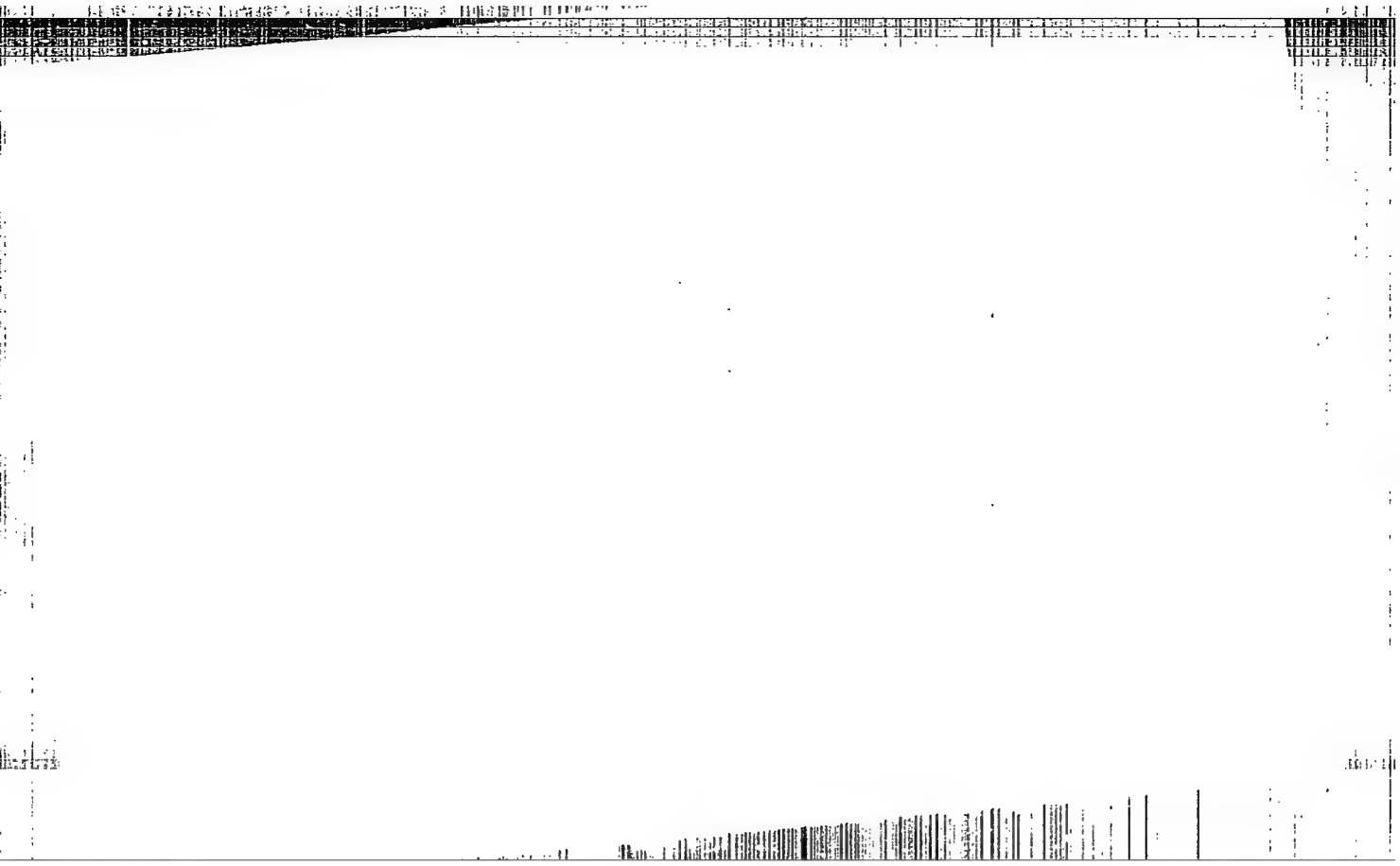
BELETSKY, V. V.; GOLUBKOV, V. V.; YERSHOV, V. G.; YEGOROV, V. A.; (Moscow)

"Investiation of flight trajectories with low thrust"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 1964.



APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001962910009-4"



APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001962910009-4"

L 38539-66 EWT(m)/EWP(t)/ETI IJP(c) WW/JD/JG/GD

ACC NR: AT6014758 SOURCE CODE: UR/0000/65/000/000/0101/0109

AUTHORS: Karasik, V. R.; Kurganov, G. B.; Yershov, V. G.; Shabalin, I. Yu.; Kopylovskiy, B. D.; Ivanov, V. S.

ORG: none

TITLE: Superconducting solenoids of niobium alloys with zirconium

SOURCE: Soveshchaniye po metallovedeniyu i metallofizike sverkhprovodnikov. 1st, 1964. Metallovedeniye i metallofizika sverkhprovodnikov (Metallography and physics of metals in superconductors); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 101-109

TOPIC TAGS: superconductivity, superconducting alloy, niobium alloy, zirconim containing alloy, soleniod / S-60 solenoid, S-50 solenoid, B-3 solenoid, B-solenoid

ABSTRACT: Superconducting solenoids for creating high magnetic fields are discussed. A brief historical review is presented of the development of superconducting solenoids and of the use of niobium-zirconium alloys. Three equivalent circuits for a superconducting solenoid connected with a power supply are presented and discussed. Some of the physical problems of superconducting niobium-zirconium alloy solenoids and the means of overcoming them are given. The construction and properties of four superconducting solenoids (S-60, S-50, B-3, and B-1) are described. The solenoids are wound with 0.25-mm diameter wire of 75% Nb—25% Zr alloy which is

Card 1/2

L 38539-66

ACC NR: AT6014758

/0

electrolytically coated with a 20 μ thick layer of copper. The fields attainable with these solenoids range up to 46 koe. Two of the solenoids (S-50 and B-1) were used together to produce a field of 51½ koe. The schematic for a 6-V transistorized power supply, which is current-regulated in the range 0.2—75 a, is given. The authors thank B. M. Vul, corresponding member AN SSSR, for valuable advice; Ye. M. Savitskiy, V. V. Baron, M. B. Golant, I. A. Baranov, and R. S. Shmulevich for supplying the wire for fabricating the solenoids; G. T. Nikitina, V. I. Sarychev, G. I. Agapov, and I. A. Bocharov for help in the work. Orig. art. has: 4 equations, 3 tables, and 3 diagrams.

SUB CODE: 20/ SUBM DATE: 23Dec65/ ORIG REF: 004/ OTH REF: 011

Card 2/2

L 32746-66 EWT(m)/EWP(t)/ETI IJP(c) GD/JG/WW/JD

ACC NR: AT6014764 SOURCE CODE: UR/0000/65/000/000/0130/0131

65
63
B+1

AUTHORS: Yershov, V. G.; Karasik, V. R.

ORG: none

TITLE: Procedure for measuring the critical parameters of superconductors for alternating current

SOURCE: Soveshchaniye po metallovedeniyu i metallofizike sverkhprovodnikov. 1st, 1964. Metallovedeniye i metallofizika sverkhprovodnikov (Metallography and physics of metals in superconductors); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 130-131

TOPIC TAGS: superconductivity, critical current, alternating current, superconducting alloy, solenoid, CURRENT DENSITY, EXTERNAL MAGNETIC FIELD

ABSTRACT: The instrumentation and experimental procedure are described for measuring the critical current at 140 khz and its dependence on the fixed external magnetic field of wire specimens of 50% Nb, 50% Zr alloy. The specimen is wound on a Teflon form and is connected as the coil in an LC circuit. For some voltage across the circuit the current through the specimen reaches the critical value, and a sharp voltage drop is observed. A superconducting solenoid, described in a preceding article (V. R. Karasik et al. Present compilation, p. 101), is used to create the external magnetic field. The measured dependence of the critical current density at 140 khz on the magnetic field for a 150 μ diameter specimen is presented

Card 1/2

graphically. It is noted that no dependence of the critical current density on the wire specimen diameter (in the range 150--230 μ) was observed. Utilization of measurements of the quality factor of the LC circuit by the method of free oscillation attenuation is also described. The authors thank B. M. Vul, corresponding member AN SSSR, for interest in the work. Orig. art. has: 2 equations and 3 figures.

Superconducting alloy -18

SUB CODE: 20/ SUBM DATE: 23Dec65/ ORIG REF: 002/ OTH REF: 008

YERSHOV, V. I.

Matrosova, T. F. and Yershov, V. I. "On the problem of treating otogenous sepsis with penicillin", Sbornik trudov Leningr. nauch.-issled. in-ta po bolezanyam ukha, nosa, gorla i rechi, Vol. IX, 1948, p. 117-20.

SO: U - 3042, 11 March 53, (Letopis "Zhurnal "nykh Statey, No. 7, 1949)

ACC NR: AT6035122 (A) SOURCE CODE: UR/2536/66/000/065/0115/0129

AUTHOR: Popov, O. V. (Candidate of technical sciences); Yershov, V. I. (Candidate of technical sciences)

ORG: Aviation Technological Institute, Moscow (Aviatsionnyy tekhnologicheskiy institut)

TITLE: Preparation of tubular control shafts with a new type of nozzle coupling

SOURCE: Moscow. Aviatsionnyy tekhnologicheskiy institut. Trudy, no. 65, 1966. Novoye v tekhnologii shtampovki (Recent developments in stamping technology), 115-129

TOPIC TAGS: shaft coupling, stress analysis, tube joint, industrial research, aluminum alloy, aircraft equipment, hot upsetting

ABSTRACT: Standard methods of coupling shafts or rods are reviewed and the development of a new type of coupling for tubular shafts, produced by locally upsetting and threading the ends, is analyzed. Theoretical stress equations are derived for the principal stresses arising during the upset operation. The amount of thickening at the ends is dependent on the upset height. After upsetting, the ends were threaded; the heavier upset cross section prevented premature failure at the coupling joint. Experiments were conducted on a 30 ton press, at a crosshead speed of 10 cm/min, and a heating up time of 60 sec. A colloidal graphite suspension was used to lubricate the die. One of

Card 1/2 UDC: 629.11.013.002.2:62-462

ACC NR: AT6035122

the most important parameters of the process was the die thickness. Optimum thickening occurred at a critical ratio of die thickness to tube wall thickness. A duralumin alloy (D16-T) was used; the tube dimensions were 20 × 18 mm at a die temperature of 500°C. The remainder of the tube was kept cool by a convection cooling head. The ends of some samples were compressed after upsetting; data on the relative thickening of differently sized tubes are presented. Mechanical testing of the final products was done both statically and dynamically. Results are given for coupling joints made by standard methods, and by hot upsetting and threading. The comparative tests showed the new type of coupling to be more reliable, lighter (by 10%), and easier to fabricate than the standard threaded or riveted couplings. The application of this new coupling is recommended for aircraft control rods. The technical procedures necessary for the production of the new rods are listed and the range of possible shapes produced are shown. Orig. art. has: 12 figures, 1 table, 6 formulas.

SUB CODE: 13,01/ SUBM DATE: none/ ORIG REF: 002

Card 2/2

YERSHOV, V.I.

Expansion of hollow billets with a varying resistance to forming.
Kuz.-shtam.proizv. 7 no.2:14-19 F '65.
(MIRA 18:4)

YERSHOV, V.I., podpolkovnik med. sluzhby, kand. med. nauk

Effect of a shock wave on the permeability of blood vessels of the inner ear. Voen.-med. zhur. no.6:80 Je '58. (MIRA 12:7)
(EAR--BLOOD SUPPLY) (SHOCK WAVES--PHYSIOLOGICAL EFFECT)

KULIKOV, V.O., inzh.; KHIL'KO, M.M., inzh.; PRILEPSKIY, V.M., inzh.; ZUHKOV, A.P., inzh.; prinimali uchstiye; MERSHCHIY, N.P., inzh.; CHETVERIKOV, V.Ya., inzh.; DUBROV, V.S., inzh.; VOLKOV, T.F., tekhnik; YERSHOV, V.I., tekhnik; SAFONOVA, M.F., tekhnik

Using scale in steelmaking by the scrap and ore process. (MIRA 13:7)
Stal' 20 no.8:708-710 Ag '60.
(Open-hearth process)

KOVALEV, N.A., doktor tekhn. nauk, prof.; YERSHOV, V.I., starshiy prepodavatel'.

Dynamic loading of flexible straight tooth gearing. Izv. vys. ucheb. zav.; mashinostr. no. 10:76-81 '65 (MIRA 19:1)

1. Moskovskiy energeticheskiy institut. Submitted November 28, 1964.

YERSHOV, V.I.

Glue for fastening rubber coatings to bushes of the drawing devices of spinning machines. Biul.tekh.-ekon.inform. no.10:21-23 '61. (MIRA 14:10)

(Glue)

YERSHOV, V.M.

USSR/Farm Animals. - Swine Q-5

Abs Jour : Ref Zhur - Biol., No 6, 1958, No 26223

Author : Yershov V.M.
Inst : ~~Not Given~~
Title : Fattening of Swine on Potato Fields (Otkorm svinoy na posevakh kartofelya)

Orig Pub : Svinovodstvo, 1957, No 6, 10-13

Abstract : The organization and results of the fattening of swine on potato fields in a kolkhoz of the Leningrad Oblast' is described. The pasturing of swine in 1954 lasted 1 month 25 days and in 1956 - 2 and a half months. The average daily increase in the weight of swine in the first case was 550-600 g. per head, and in the second case it amounted to 573 g.

Card : 1/1

Yershov, V. M.

132-1-7/15

AUTHOR: Yershov, V.M.

TITLE: Possibilities of Using Mercurimetric Surveying in Prospecting for Cinnabar Deposits in the Central Urals. (O vozmozhnosti primeneniya rtutnometricheskoy s'yëmki pri poiskakh mestorozhdeniy na srednem Urale)

PERIODICAL: Razvedka i Okhrana Nedr, 1958, # 1, pp 43-46, (USSR)

ABSTRACT: Improved methods of prospecting for metals lead to a wide application of geochemical and bio-geochemical methods. While prospecting for mercury deposits the rather simple "schlich" method, based on the study of the mechanical dispersion halo of cinnabar at the distruction of primary deposits of daylight surface, was generally used. It is well known that a wide primary dispersion halo of mercury forms around main deposits of cinnabar. After the destruction of cinnabar deposits and primary dispersion halos of mercury, secondary halos are formed, which consist of gaseous, chemical and mechanical dispersion halos. Clayey layers played an important part in the forming of alluvial-diluvial blanket deposits.

Based on these experiences, investigations were started to apply geochemical prospecting methods for deposits of mercury in the Central Urals. For determining mercury in rocks, the colorimetric method proposed by D.N. Finkel'shteyn and I.B.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-

Card 1/4

YERSHOV, V. M.

AUTHOR:

TITLE: Yershov, V.M.

132-1-7/15

Possibilities of Using Mercurimetric Surveying in Prospecting for Cinnabar Deposits in the Central Urals. (O vozmozhnosti primeneniya rtutnometricheskoy s'yëmki pri poiskakh mestorozhdeniy na srednem Urale)

PERIODICAL: Razvedka i Okhrana Nedr, 1958, # 1, pp 43-46, (USSR)

ABSTRACT:

Improved methods of prospecting for metals lead to a wide application of geochemical and bio-geochemical methods.

When prospecting for mercury deposits the rather simple "achlich" method, based on the study of the mechanical dispersion halo of cinnabar at the distruction of primary deposits of daylight surface, was generally used. It is well known that a wide primary dispersion halo of mercury forms around main deposits of cinnabar. After the destruction of cinnabar deposits and primary dispersion halos of mercury, secondary halos are formed, which consist of gaseous, chemical and mechanical dispersion halos. Clayey layers played an important part in the forming of alluvial-diluvial blanket deposits.

Based on these experiences, investigations were started to apply geochemical prospecting methods for deposits of mercury in the Central Urals. For determining mercury in rocks, the colorimetric method proposed by D.N. Finkel'shteyn and I.B.

Card 1/ 4

Possibilities of Using Mercurimetric Surveying in Prospecting for Cinnabar Deposits in the Central Urals

Petropavlovskaya was used. By this method, chemically pure mercury is driven-off, whereby a hard soluble mercury-copper-iodine compound is formed, whose bright color is compared with standard color shades. The sensitivity of the method is 0.001%. This is a simple method for determining mercury, and is applicable for a wide range of geologic surveying. On the Ayat gold-antimony-mercury deposits, only the eastern section was suitable for mercurimetric surveying, where the ores consist predominantly of antimonite. The results of mercurimetric surveying of this part of the deposit are shown on figure 1, where in some samples the content of mercury is as high as 0.004%. Tests conducted on the Novo-Ayat deposit, located 1 km north west of the Ayat deposit, have yielded samples with 0.02% of mercury. At the Yegorshino cinnabar deposits, located along the border of the Bobrovka river valley, the mercury dispersion halo has a width of approximately 20 m, whereby the contents of mercury above the ore zone reaches 1.5%. The presence of cinnabar in alluvial-diluvial formations is found from 3-4 times more often by the schlich method than

Possibilities of Using Mercurimetric Surveying in Prospecting for Cinnabar Deposits in the Central Urals

mercury by chemical analysis in metallometric samples at the same intervals. The low sensitivity of the mercurimetric method is not a deciding factor in prospecting for mercury deposits, but gives a more restricted surface of the halos, which has to be examined by means of mining operations.

The author arrives at the following conclusions: 1) Disregarding the limitations, large scale prospecting by the mercurimetric method can be recommended for the Central Urals region. 2) Secondary dispersion halos of mercury, established by means of mercurimetric surveying, are small and therefore delineate areas for more detailed studies. 3) When prospecting for cinnabar deposits by the recommended method, a sideway shifting of the mercury in the dispersion halos must be taken into consideration. 4) The distance between test holes must range from 15-20 m, in which case the halos will be fixed at several points, and even small deposits will be located. 5) Mercurimetric surveying will be especially effective when prospecting for mercury deposits in which cinnabar occurs chiefly in the form of fine and very

132-1-7/15

Possibilities of Using Mercurimetric Surveying in Prospecting for Cinnabar Deposits in the Central Urals

fine grains.
There are 2 figures and 7 Russian references.

ASSOCIATION: Ural Branch of the USSR Academy of Sciences (Ural'skiy filial AN SSSR)

AVAILABLE: Library of Congress

Card 4/4

AUTHORS: Yershov, V.M., Shcheglova, A.I. 30V/7-58-4-12/13

TITLE: Germanium in the Pit Waters of the Kizel Coal District (Germaniy v shakhtnykh vodakh Kizelovskogo kamennougol'nogo basseyna)

PERIODICAL: Geokhimiya, 1958, Nr 4, pp. 389 - 391 (USSR)

ABSTRACT: Germanium was determined colorimetrically with phenyl fluoron. In order to separate disturbing elements it was extracted with carbon tetrachloride from 9 n hydrochloric acid after neutralization and evaporization. The pit water from 13 out of 20 investigated pits contained germanium. The germanium content was by 2 - 6 times higher than the sensitivity of the method of analysis and attained up to 3mg/m^3. The place of sample taking, the depth of the pit, the free sulfuric acid in the pit water (mg/l), the supply of pit water in m^3/h and the found germanium content (mg/m^3) are represented in a talbe. The germanium quantity which is pumped out annually with the pit water amounts to approximately 200 kg. The coal field yields annually approximately 11 million tons of water in which probably

Card 1/2

Germanium in the Pit Waters of the Kizelov Coal District

SOV/7-58-4-12/13

several tons of germanium are contained. Germanium is washed out to a relatively small extent; therefore it may be assumed that germanium is bound closely to the organic substance of the coal. There are 1 table and 6 references, 4 of which are Soviet.

ASSOCIATION: Ural'skiy filial AN SSSR, Sverdlovsk (Sverdlovsk Ural Branch AS USSR)

SUBMITTED: January 22, 1958

1. Germanium--Determination 2. Germanium--Separation 3. Germanium --Sources 4. Colorimetric analysis--Applications

Card 2/2

3(8) SOV/7-58-6-12/16

AUTHOR: Yershov, V. M.

TITLE: On the Nature of the Binding of Germanium to the Organic Matter in Fossil Coals (O kharaktere svyazi germaniya s organicheskim veshchestvom v iskopayemykh uglyakh)

PERIODICAL: Geokhimiya, 1958, Nr 6, pp 605 - 606 (USSR)

ABSTRACT: In the coals of the Kizelovskiy basseyn there is a binding between germanium and vitrinite (Figs 1 and 2). In order to find whether germanium is bound by sorption 8 samples were subjected to dialysis (weighed sample 10 g, chamber content 180 to 200 cm^3, potential gradient 18 V/cm, duration of electrodialysis 24 to 36 hours). No germanium was found in the solution. There was also no germanium in the solution in a soft coal sample from a Soviet deposit. It is true that in the ash, germanium occurs as dioxide. Thus, it may be concluded that in coal, germanium does not occur as sorbed complex, but as organometallic compound.
V. M. Ratynskiy put the soft coal sample at the author's disposal. There are 2 figures and 6 references, 2 of which are Soviet.

Card 1/2

On the Nature of the Binding of Germanium to the Organic Matter in Fossil Coals SOV/7-58-6-12/16

ASSOCIATION: Ural'skiy filial AN SSSR, Sverdlovsk (Ural Branch, AS USSR, Sverdlovsk)

SUBMITTED: June 2, 1958

Card 2/2

YERSHOV, V.M.

Novo-Ayat' cinnabar deposit in the Urals. Trudy Gor.-geol. inst. UFAN SSSR no.34:41-45 '58. (MIRA 14:10)
(Ayat' region (Ural Mountains))—Cinnabar)

SOV/11-59-3-13/17

3(8)

AUTHOR: Yershov, V.M.

TITLE: On A.B. Vistelius' Article "New Confirmation of Goldschmidt's Observations of the Position Occupied by Germanium in Hard Coal" (O stat'ye A.B. Visteliusa "Novoye podtverzhdeniye nablyudeniy Gol'dshmidta o polozhenii germaniya v kamennykh ugl[illegible]kh)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Geologicheskaya, 1959, Nr 3, pp 115-116 (USSR)

ABSTRACT: The author points out that the problem of binding germanium with the ash content of coal was dealt with by A.B. Vistelius 12 years ago. Vistelius committed a mistake which has remained unnoticed up to this date. By using data from V.M. Ratynskiy (Trudy Biogeokhimicheskoy laboratorii AN SSSR - Transactions of the Biochemical Laboratory of the AS USSR, Nr 8, 1946), Vistelius set up a logarithmic correlation table and ascertained the correlation coefficient between the germanium content in ashes and the ash content of coal

Card 1/2

On A.V. Vistelius' Article "New Confirmation of Goldschmidt's Observations of the Position Occupied by Germanium in Hard Coal"

of the Khumar /deposit. This coefficient proved to equal: - 0,52 ± 0,05. Therefore, Vistelius, contrary to V.M. Ratynskiy, concluded that "between the germanium content in coal of the Khumar deposit and its ash content, there exists a clear correlation binding which has, in the first approximation, a linear form for logarithms of contents. The author provides data which prove that this conclusion is incorrect. Soviet research showed that the correlation coefficient between the ash content of coal and the germanium content is equal to - 0,1 ± 0,11 for coal of the Kizel basin. Therefore, the conclusion by V.M. Ratynskiy that the "correlation between the germanium content and the ash content of coal is not observed" is correct not only for the Khumar /deposit but is probably also important for other deposits.

Card 2/2

YERSHOV, V.M.

Using electrodialysis for the study of trace elements in coals. Trudy Gor.-geol. inst. UFAN SSSR no. 32:231-233 '59. (MIRA 14:5)
(Electrodialysis) (Trace elements) (Coal)

YERSHOV, V.M.

Calcite crystals from the Pyshma-Klyuchevskiy deposit in the Urals. Trudy Gor.-geol. inst. UFAN SSSR no. 42:175-178 '59. (MIRA 14:2)

(Ural Mountains—Calcite crystals)

S/007/61/000/003/004/004
B107/B206

AUTHOR: Yershov, V. M.

TITLE: Rare-earth elements in the coals of the Kizelovskiy deposit

PERIODICAL: Geokhimiya, no. 3, 1961, 274-275

TEXT: There are only few data on the behavior of rare-earth elements in hypogenic processes (Ref. 1: I. D. Borneman-Starynkevich, S. A. Borovik, and I. B. Borovskiy. Dokl. AN SSSR 30, no. 3, 1941; Ref. 4: A. P. Vinogradov. Geokhimiya redkikh i rasseyannykh khimicheskikh elementov v pochvakh (Geochemistry of rare and dispersed chemical elements in soils), second edition, Izd-vo AN SSSR, M., 1957). The author was able to observe a fractionation of the rare-earth elements during their concentration as accessories in the coals of the Kizelovskiy deposit; the geological structure and peculiarities of coal concentration of this deposit are sufficiently well known (Ref. 2: P. V. Vasil'yev. Paleogeograficheskiye usloviya formirovaniya uglenosnykh otlozheniy nizhnego karbona Zapadnogo sklona Urala (Paleographic formation conditions of coal-bearing sediments of the lower carbonoferous on the western slope of the Ural), Ugletekhizdat, 1950; Ref. 8: I. V. Pakhomov.

Card 1/7

Rare-earth elements ...

When the results of a qualitative spectral analysis of common coal ash and the ash of a concentrate (specific weight 1.4) are compared, it is established that much more yttrium and ytterbium are present in the concentrate. This points towards a bond between Y, Yb and the organic coal substance. The Table shows that Y amounts to almost 53% of TR_2O_3. Cerium strongly predominates among the lanthanides (Ref. 9: Ye. I. Semenov, R. L. Barinskiy. Geokhimiya, no. 4, 314, 1958). The relation Ce > Nd > La > Pr prevails within the cerium group; the most widely distributed minerals show however Ce > La > Nd > Pr (Ref. 5: V. I. Gerasimovskiy. Geokhimiya redkozemel'nykh elementov (Geochemistry of rare-earth elements). Collection "Redkozemel'nyye elementy" (Rare-earth elements). Izd-vo AN SSSR, M., 1958). This is clearly shown in the figure; the diagrams for the amount of rare earths show strongly selective composition of lanthanides. The even-numbered elements amount to more than three quarters (78.5%). Ce/La = 3; Nd/Pr = 3; Gd/Tb=5.4; Dy/Ho = 3.6; Er/Tu = 5; Sm/Eu = 23. The ratios are thus closer to the mean values for all minerals than for the Clarke numbers. Yttrium has the highest Clarke concentration in the coals of the Kizelovskiy deposit. The Clarke concentrations for ytterbium earths are in the mean twice as high as

Card 3/7

Rare-earth elements ...

for the cerium earths, although these represent the majority of the lanthanides. It is thus established that the ytterbium earths were more strongly concentrated than the cerium earths, i. e. those were selectively concentrated. A bond of yttrium and ytterbium to the organic substance was mentioned. This bond and the Clarke concentrations show that a similarity exists in the behavior of ytterbium earths and germanium in the coals from Kizel. It may therefore be presumed that ytterbium earths are present in the coal in the form of elemental-organic compounds and that their concentration as well as that of germanium occurred in the state of peat formation. The concentration of the organic substances for the coal of the Kizelovskiy deposit was accompanied by the sedimentation of great amounts of clay substance (mean ash content 26%) and took its course in the presence of considerable amounts of sulfur (mean sulfur content of the coal 5.5%). The amount of rare earths in the coals from Kizel differs however somewhat from the amount in clay formations (Ref. 5) and in the sediments of the Black Sea which were formed in the reducing hydrogen sulfide medium (Ref. 7: E. A. Ostroumov. Dokl. AN SSSR, 91, no. 5, 1953). On this the assumption is based that the selective concentration of rare earths was not caused by abundant precipitation of clay substance or the great amounts of sulfur, but

...re-earth elements ...

is conditional on the selective capture by the organic substance. The author thanks R. L. Barinskiy for conducting the analyses. There are 1 figure, 1 table, and 9 Soviet-bloc references. [Abstracter's note: Essential translation.]

ASSOCIATION: Ural'skiy filial AN SSSR, Sverdlovsk (Ural Branch AS USSR, Sverdlovsk)

SUBMITTED: September 12, 1960

Table: Content of rare earths elements in the sum of oxides from the Kizel coals and the Clarke concentration. The analysis was made by R. L. Barinskiy IMGRE (Institute of Mineralogy, Geochemistry and Crystallochemistry of Rare Elements). The analysis method is explained in the article by Ye. I. Semenov and R. L. Barinskiy (Ref. 9).
Legend: (1) element number, (2) element, (3) content in % of the sum of oxides of rare earths, (4) Clarke concentration in the coal (Ref. 3: A. P. Vinogradov. Geokhimiya, no. 1, 6, 1956), (39) yttrium, (57) lanthanum, (58) cerium, (59) praseodymium, (60) neodymium etc. Lutecium was not determined

Card 5/7

Rare-earth elements ...

individually, together with yttrium it amounts to 52.95%.

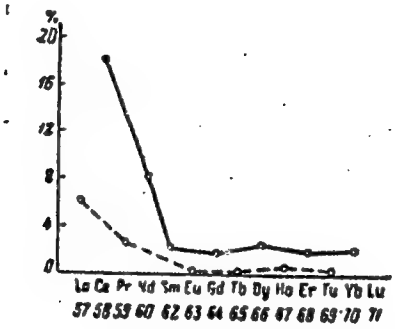
№ элемента	Элемент	Содержание в сумме окислов редких земель, %	Класс концентрации в угле [3]	№ элемента	Элемент	Содержание в сумме окислов редких земель, %	Класс концентрации в угле [3]
39	Иттрий	52,95	>1	65	Тербий	0,35	~0,1
57	Лантан	6,0	0,2	66	Диспрозий	2,5	0,8
58	Церий	18,0	0,6	67	Гольмий	0,7	—
59	Празеодим	2,6	0,5	68	Эрбий	2,0	>1
60	Неодим	8,0	0,3	69	Тулий	0,4	0,6
62	Самарий	2,3	0,7	70	Иттербий	2,2	>1
63	Европий	0,1	~0,1	71	Лютеций**	—	—
64	Гадолиний	1,9	0,4				

Legend to the Figure: Diagram for the composition of the lanthanides from the ashes of the Kizel coal. Full line: even-numbered elements; dotted line: odd-numbered elements.

Card 6/7

rare-earth elements ...

S/007/61/000/003/004/004
B107/B206



Card 7/7

S/137/62/000/003/182/191
A154/A101

AUTHORS: Yershov, V. M.; Mettikh, L. I.

TITLE: A rapid method of determining germanium in coal and ash

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 4, abstract 3 K 15 (Sb. "Khim., fiz.-khim. i spektr. metody issled. rud redk. i rasseyan. elementov". Moscow, Gosgeoltekhizdat, 1961, 57 - 60)

TEXT: 5 - 10 g of coal (grain size 0 - 1.5 mm) or 1 g of ore is ashed in a porcelain cup in a muffle furnace without mixing at 550° for 1 h. The ash is transferred to a distiller, and 10 ml of HCl (1 : 1) + 8 drops of concentrated H_3PO_4 are added. 5 ml of water is poured into the receiver, and $GeCl_4$ is distilled off, 8 - 9 ml of distillate being collected. After cooling, another 5 ml of HCl (1 : 1) is added and distillation carried out for a second time, 5 ml of distillate being collected. All the distillate is transferred to a 25-ml retort, which is filled up to the mark with water. 5 - 10 ml of the obtained solution is used to bring up 1 n. HCl to 10 ml, 1 ml of a 0.5 % solution of gelatin and 1 ml of a 0.05 % solution of phenyl fluoron are added, and the color compared with stand-

Card 1/2

S/137/62/000/003/182/191
A154/A101

A rapid method of determining germanium ....

ards prepared at the same time as the sample after 50 - 60 mins. The series of standards are prepared by 0.05 - 0.45 ml of the solution of Ge (0.01 mg/ml), to which up to 10 ml of 1 n. HCl is added and which is dyed as described above. There are 18 references.

N. Gertseva

[Abstracter's note: Complete translation]

Card 2/2

YERSHOV, V.M.

Point method of counting the components under the microscope by means of an integration table. Trudy Gor.-geol.inst. UFAN SSSR no.56:161-162 '61. (MIRA 15:7)
(Microscopy)
(Minerals—Analysis)

LIPCHIN, N.N.; BELYKH, Yu.A.; YERSHOV, V.M.

Phase recrystallization of steels alloyed with molybdenum.
Metalloved. i term. obr. met. no.4:17-22 Ap '65.
(MIRA 18:6)

1. Permskiy politekhnicheskiy institut.

KATS, L.Ya., inzh.; YERSHOV, V.N., inzh.

Technical and economic results of producing lightweight I-bars and channels on KMK rolling mills. Stal' 20 no. 7:651-654 Jl '60. (MIRA 14:5)

1. Kuznetskiy metallurgicheskiy kombinat.
(Rolling (Metalwork)---Costs)

YERSHOV, V.N., inzh.

Calculating the temperature conditions for rolling. I-beams and channel iron. Stal' 20 no. 12:1119-1121 D '60. (MIRA 13:12)

1. Kuznetskiy metallurgicheskiy kombinat.
(Rolling (Metalwork))

S/0133/64/000/001/0050/0052

ACCESSION NR: AP4013549

AUTHORS: Kobyzev, V. K.; Yershov, V. N.; Kuznetsov, A. F.; Mazurik, P. N.; Ryazanov, D. G.; Fiskes, E. Ya.

TITLE: Rolling two-layer sheets with the basic layer made of low-alloy steel

SOURCE: Stal', no. 1, 1964, 50-52

TOPIC TAGS: rolling, plating, low alloy steel, steel, 16GS low alloy steel, carbon steel, OKh13 stainless steel, Kh18N10T stainless steel, St.3 steel, stainless steel, corrosion, steel corrosion, steel mechanical properties, 3K steel, 15K steel, 20K steel, regenerative furance, continuous furnace

ABSTRACT: This work was carried out in order to study the surface quality and the mechanical properties of two-layer steel sheets. The samples were a basic sheet made of low-alloy steel (16GS) plated with stainless steels OKh13 or Kh18N10T. The procedure followed was developed by the KMK (Kuznetsk Metallurgical Combine). One part of the samples was held at 1260C for 1.25 hours, at 1320C for 0.75 hours, and at 1310C for 1.5 hours. Temperature at the end of rolling was 1170-1180C, and rolling was completed either with or without edging. In the former case the plate

Card 1/4

ACCESSION NR: AP4013549

metal was ruptured in some cases; in the latter case the quality of the metal surface was much higher, and no peeling of the plate layer was observed. The remaining samples were heated in a continuous furnace to 1310-1330C for 4.5 hours. Temperature at the end of rolling was 1000-1010C. All the samples plated with steel Kh13N10T underwent thermal treatment at 900-930C after rolling, while samples plated with steel OKh13 were held at 660C for 14-16 hours. The results obtained were satisfactory. They are presented graphically in Figs. 1 and 2 on the Enclosures. "I. L. Vaynshteyn, M. M. Bashenov, A. V. Yakubson, and G. B. Bublik participated in this work." Orig. art. has: 4 figures and 1 formula.

ASSOCIATION: Kuznetskiy metallurgicheskiy kombinat (Kuznetsk Metallurgical Combine)

SUBMITTED: 00 DATE ACQ: 03Feb63 ENCL: 02

SUB CODE: ML NO REF SOV: 003 OTHER: 000

Card 2/2

YERSHOV, V. N.

26403 Issledovaniya raboty stupeni osevogo kompressora v potentsial'nom potoke. Trudy in-ta teploznergetiki (Akad. nauk ukr. SSR.) sb. 1, 1949, s. 32-44.

SO: LETOPIS' NO. 35, 1949

YERSHOV, V. N.

26404 K voprosu o kharakteristike mnogostupenchatogo osevogo kompressora. Trudy in-ta teploznergetiki (Akad. nauk ukr. ssp), sb. 1, 1949, s. 45-51.

SO: LETOPIS' NO. 35, 1949

YERSHOV, V.N.

USSR/Physics - Analysis, Gases Jun 52

"Method of Gaseous Analysis Based on Application of Optical-Acoustic Phenomenon," V. N. Yershov

"Zhur Tekh Fiz" Vol XXII, No 6, pp 1022-1028

Method was already suggested in 1938 by Prof M. L. Veyngerov (cf. "Dok Ak Nauk SSSR" 19, 9, 1938; "Iz Ak Nauk SSSR, Ser Fiz" 5, 1, 1938; "Zavod Lab" 4, 427, 1947. Author supplements Veyngerov's research with exptl material Describes equipment and applications. Indebted to professors M. L. Veyngerov and I. I. Paleyev. Received 29 Oct 50.

219T91

YERSHOV, V.N.

Establishing the characteristics of gas turbines. Sborn.trud.lab. prob.bystr.mash. 3:124-132 '53. (MLRA 9:9)
(Gas turbines)

YERSHOV, V.N., kandidat tekhnicheskikh nauk.

Radial flow equilibrium in axial turbomachine rotors. Sbor.trud. lab.probl.bystr.mash. no.4:68-75 '54. (MLRA 7:12)
(Turbomachines--Impellers)

SOV/124-58-1-487

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 1, p 59 (USSR)

AUTHOR: Yershov, V. N.

TITLE: Approximate Analysis of the Operating Regimes of Turbojet Engines (Priblizhennyy analiz rezhimov raboty turboreaktivnogo dvigatelya)

PERIODICAL: Tr. Khar'kovsk. aviats. in-ta, 1954, Nr 15, pp 3-12

ABSTRACT: The author sets forth an approximate analysis of the operating regimes of turbojet engines relative to changes in rpm, altitude, and airspeed. The operation of a turbojet engine is schematized with the aid of some simplifying assumptions. In particular, the author employs the concept of approximate similitude introduced by him. He introduces a relationship of the change in expansion ratio within the turbine in terms of the outlet area of the jet tailpipe. The author arrives at the general conclusion that in an engine with a constant-area tailpipe the condition of the equality of the flow rate through the turbine and the nozzle during all regimes is observed only at a constant expansion ratio within the turbine; this conclusion is valid only if the pressure drop in the jet tailpipe and in the nozzle group of the turbine is critical or supercritical. Equations are provided for the

Card 1/2

SOV/124-58-1-487

Approximate Analysis of the Operating Regimes of Turbojet Engines

construction of lines of compatible regimes on the compressor-performance chart with constant-area and variable-area tailpipes. A simplified analysis, for use even in the absence of a compressor-performance chart, is outlined.

K. V. Kholshchevnikov

Card 2/2

YERSHOV, V. N.

"Gas Motion through a Stage of an Axial Turbine" Akademiya Nauk Ukr. SSR Kiev. Laboratoriya problem bystrokhodnykh mashin i mekhanizmov. Sbornik trudov, 1955, no. 5, p. 27-33, diagram.

Summary - 519851

SOV/124-58-10-11047

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 10, p 48 (USSR)

AUTHOR: Yershov, V.N.

TITLE: The Principle of Minimum Resistance and the Development of the Characteristics of the Impeller of an Axial-flow Fan (Printsip minimuma soprotivleniya i postroyeniye kharakteristik rabochego kolesa osevogo ventilyatora)

PERIODICAL: Sb. tr. Labor. gidravl. mashin. AN UkrRSR, 1956, Nr 6, pp 74-85

ABSTRACT: A series of problems is presented on hydromechanics and aero-mechanics which are solved with the aid of the variational principle of minimum resistance. A possible application of this principle in the development of the characteristics of blade-type machines and in particular axial-flow fans is pointed out. A sample calculation is given. It is noted that the result of the application of the minimum-resistance principle in the range of great discharges presents results that practically coincide with the method of calculation based on the condition of constant circulation along the blades, while in the range of small discharges it affords better agreement with experi-ment and, in particular, gives some idea regarding the region of

Card 1/2

The Principle of Minimum Resistance and the Development (cont.) SOV/124-58-10-11047

unstable operation of a fan.

I. A. Shepelev

Card 2/2

YERSHOV, V.N.; PAVLENKO, G.V.

Conditions of approximate similarity for single-stage gas turbines. Sobr. trud. Lab. gidr. mash. no.7:154-161 '58.
(MIRA 12:9)

(Gas turbines)

SOV/133-58-6-18/33

AUTHOR: Soroko, L.N., Nefedov, A.A., Yershov, V.N., Masyukov, S.N. (Deceased), Frolov, N.P. and Braunshteyn, R.A.

TITLE: Rolling of Lightened Nr 19 Beam from Low Alloy Steel 09G2D (Prokatka oblegchennoy balki No 19 iz nizkolegirovannoy stali 09G2D)

PERIODICAL: Stal', 1958, Nr 6, pp 532 - 537 (USSR)

ABSTRACT: An experimental rolling of a lightened Nr 19 beam from low-alloy steel 09G2D (composition %: C $\leq$ 0.12; Mn 1.4-1.[illegible]; Si 0.2-0.4; Cu 0.22-0.44; Cr $\leq$ 0.30; Ni 0.01-0.03; S and P $\leq$ 0.04) is described. Lightened Nr 19 beam (Figure 1) (TuTs 08-124-57) weighs 19.5% less per m than normal Nr 19 beam (GOST-5267-50) which is usually rolled from steel St3. For experimental rolling, four heats of steel 09G2D were made. Rolling was done on the mill 500 from shaped semis (Figure 2). The calibration of rolls is shown in Figure 3. The metal was heated from cold charging to an average temperature of 1 170 °C. The decrease of temperature in the individual passes - Figure 4. The final temperature of the neck of the beam was 60 °C lower than that of normal beam. Frequency distribution of deviations of dimensions from the nominal ones - Figure 5. The comparison of the loads on the individual stands during rolling of normal and lightened Nr 19

Card1/3

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001962910009-4

AUTHOR: Soroko, L.N., Nefedov, A.A., Yershov, V.N., Masyukov, S.N. (Deceased), Frolov, N.P. and Braunshteyn, R.A. SOV/133-58-6-18/33

TITLE: Rolling of Lightened Nr 19 Beam from Low Alloy Steel 09G2D (Prokatka oblegchennoy balki No 19 iz nizkolegirovannoy stali 09G2D)

PERIODICAL: Stal', 1958, Nr 6, pp 532 - 537 (USSR)

ABSTRACT: An experimental rolling of a lightened Nr 19 beam from low-alloy steel 09G2D (composition %: C $\leq$ 0.12; Mn 1.4-1.7; Si 0.2-0.4; Cu 0.22-0.44; Cr $\leq$ 0.30; Ni 0.01-0.03; S and P $\leq$ 0.04) is described. Lightened Nr 19 beam (Figure 1) (TuTs 08-124-57) weighs 19.5% less per m than normal Nr 19 beam (GOST-5267-50) which is usually rolled from steel St3. For experimental rolling, four heats of steel 09G2D were made. Rolling was done on the mill 500 from shaped semis (Figure 2). The calibration of rolls is shown in Figure 3. The metal was heated from cold charging to an average temperature of 1 170 °C. The decrease of temperature in the individual passes - Figure 4. The final temperature of the neck of the beam was 60 °C lower than that of normal beam. Frequency distribution of deviations of dimensions from the nominal ones - Figure 5. The comparison of the loads on the individual stands during rolling of normal and lightened Nr 19

Card1/3

Rolling of Lightened Nr 19 Beam from Low Alloy Steel 09G2D

beams together with the maximum permissible loads and rpm of motors - Table 1. The comparison of the mill throughput per hour during rolling normal and lightened Nr 19 beams - Table 2. Mechanical properties of specimens cut from various places of the beam - Tables 3 and 4. It is concluded that: 1) rolling of light Nr 19 beams on the mill 500 is possible with the existing equipment; 2) dimensions of the profile obtained were situated mainly in the range of minus tolerances; 3) the temperature of the neck at the end of rolling was 790 °C, i.e. 60 °C below the temperature obtained during rolling normal beam Nr 19; 4) loads on motors of roughing stands was 22-23% higher than during rolling of normal Nr 19 beam. Loads on the finishing stand either do not exceed or only slightly exceed permissible ones; 5) specific power consumption was 37% higher than during rolling normal Nr 19 beam from St.3 steel; 6) the output of the mill during rolling of the light beam decreases by 17%. It is expected that with mastering of the process, this decrease can be reduced to 8%; 7) the chemical composition and mechanical properties of 09G2D steel

SOV/133-58-6-18/33

Rolling of Lightened Nr 19 Beam from Low Alloy Steel 09G2D

satisfy the requirements of standard ChMTU-5688-56 for low-alloy steels. The following engineers participated in the work: N.I. Khoroshev, I.M. Sharapov and F.A. Firsakov. There are 5 figures and 4 tables.

ASSOCIATIONS: Kuznetskiy metallurgicheskiy kombinat (Kuznetsk Metallurgical Combine) and Ural'skiy institut chernykh metallov (Urals Institute of Ferrous Metallurgy)

Card 3/3 1. Beams--Production 2. Rolling mills--Applications

VERSHOV, V.N.

S/147/59/000/04/020/020
E031/E413

AUTHOR: Zolotukhin, V.K.

TITLE: The Scientific-Technical Conference at Khar'kov Aviation Institute

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1959, Nr 4, pp 161-165 (USSR)

ABSTRACT: In May 1959, the 16th Conference of Professorial and Teaching Staff took place.

Strength of Aircraft Section.

"On the Theory of Bending of Thin-Walled Columns" by Docent, Candidate of Technical Sciences L.P.Vinokurov; "The Simulation of Static Experiments on Thin-Walled

Card 5/11

Structures" by Candidate of Technical Sciences L.A.Kolesnikov and Senior Instructor V.K.Zolotukhin; "The Bending of Beams Framing an Opening" by Candidate of Technical Sciences L.A.Kolesnikov; "The Influence of the Rigidity of Ribs and Beams on their Bending" by Assistant N.A.Sholomov; "The Calculation of the Bending of Rectangular Plates by the Discrete Method" by Assistant Yu.P.Petrov; "The Calculation of Cylindrical Shells by the Method of Discrete Variables" by Aspirant N.I.Gur'yev.

Engine Construction Technology Section.

"The Choice of a Scheme for a Hydraulic Servo-System for the Automation of Welding Processes" by Assistant V.V.Dalaitskiy; "An Investigation of the Process of Polishing by an Abrasive Belt" by Senior Instructor, Candidate of Technical Sciences V.N.Verezub; "The Investigation of the Operation of a Pneumatic-Hydraulic Plant" by Assistant V.I.Bastnyev;

Card 6/11

"A Static Analysis and Calculation of the Accuracy of the Technological Processes of Machining" by O.M.Parkhomenko; "The Automatic Welding of Long Panels" by Candidate of Technical Sciences L.F.Kamakov; "Prospects in the Use of Specialised Computers for the Determination of the Optimum Geometry of Cutting Tools" by Docent, Candidate of Technical Sciences V.P.Koshernovskiy; "The Spreading of the Experience of Innovators and the Classification of Organizational-Technical Measures in Machine Construction" by Senior Instructor M.M.Apanovich; "Features of Measurable Abrasion of a Cutting Tool in Fine Sharpening" by Assistant V.N.Malikov; "An Investigation of the Process of Compression at High Velocities of Deformation" by Docent, Candidate of Technical Sciences A.K.Rayev; "The Standardization of Vibration Effects on the Human Organism in Aircraft Production" by Senior Instructor V.D.Ivanov.

Theory and Construction of Aircraft Engines and Propeller-Driven Machines Section. "The Investigation

Card 7/11

of the Flow Between the Inlet and Outlet Valves of a Turbine" by Instructor, Candidate of Technical Sciences V.N.Yershov; "The Variation in the Stage Parameters of an Axial Compressor in Accordance with the Size of the Radial Clearance" by Assistant A.S.Anyutin; "On the Problem of Non-Stationary Heat Transfer" by Assistant S.D.Frolov; "The Influence of an Electric Field on the Flame of a Burner" by Senior Engineer P.P.Kostenko; "Calculation of the Temperature Compensation of Capacitance Pressure Pick-Ups" by Assistant L.Ya.Astaf'yev.

Aerohydrodynamics Section.

"Ideal Hypersonic Flow Round a Body" by Assistant V.I.Kholyavko; "The Control of the Boundary Layer of a Wing by Perforation of the Leading Edge" by Assistant Ye.P.Vishnevoy; "The Gas-Hydraulic Analogy and its Application" by Senior Instructor D.A.Mishchenko; "The Aerodynamic Investigation of Wing Profiles for Small Reynolds Numbers" by Engineer Yu.F.Usik.

YERSHOV, V.N.

Variational principle of maximum flux of mechanical energy and application of this principle to the design of axial-flow turbomachines. Izv. vys. uchob. zav.; aviatekh. 2 no.1:46-54 '59. (MIRA 12:3)

1.Khar'kovskiy aviatsionnyy institut, Kafedra teorii lopastnykh mashin i prikladnoy gazovoy dinamiki.
(Turbomachines--Fluid dynamics)

YERSHOV, V.N.; PAVLENKO, G.V.

Rotating stall in the elementary stage of an axial-flow compressor. Izv.vys.ucheb.zav.; av.tekh. 2 no.3:64-71 '59.
(MIRA 12:12)

1. Khar'kovskiy aviatsionnyy institut. Kafedra lopastnykh mashin i prikladnoy gazovoy dinamiki.
(Aircompressors)

SHUBENKO-SHUBIN, Leonid Aleksandrovich; LISETSKIY, Nikolay Longinovich; SHVARTS, Viktor Aleksandrovich; KORZH, Petr Ivanovich; PROSKURA, G.F., akademik, retsenzent [deceased]; YERSHOV, V.N., dotsent, kand.tekhn.nauk, retsenzent; SOROKA, M.S., red.

[Atlas of drawings and diagrams of gas turbine units] Atlas konstruktsii i skhem gazoturbinnykh ustanovok. Pod obshchei red. L.A.Shubenko-Shubina. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 183 p. (MIRA 14:1)

1. Chlen-korrespondent AN USSR (for Shubenko-Shubin). 2. AN USSR (for Proskura).
(Gas turbines--Design)

69324

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AUTHOR: Yershov, V. N.

TITLE: The Instability of the Flow in Compressors

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1960, Nr 1, pp 111-120 (USSR)

ABSTRACT: The instability of the flow in compressors may take the form of oscillations of the total mass of the fluid which fills the engine and the circuit. The frequency of these oscillations depends on the damping properties of the system. This instability is called the surge. As indicated by Emmons et al. (Ref 6) and Pfleiderer and Weinrich (Ref 8), it is necessary to differentiate between the causes leading to the appearance of surging (the so-called 'hard' and 'soft' approach to the unstable region). Hard surging occurs in the regions of work near $(H_{total})_{max}$ of the engine (or stage) characteristic diagram and needs an impulse of a finite magnitude to produce it. The soft surge occurs

Card 1/7

The Instability of the Flow in Compressors

along the rising branch of the H_{total} - Q character-
istic, is spontaneous (i.e. will be induced by
infinitely small disturbances of the flow) and is
characterized by self-induced oscillations; since
there is no need for pronounced impulses to produce
this phenomenon it is clear that the flow is fully
unstable in those regions. The principal difference
in the two phenomena is linked with the appearance of
the rotating stall in the rotor blades (Refs 7,9).
The number of the stall cells (which destroy the axial
symmetry of the flow) and the speed of their propagation
do not depend upon the "grid"only on the region of
operation and the aerodynamic characteristics of the
cascade. The rotating stall is accompanied by the
appearance of a vortex ring, i.e. a reversed flow and
axi-symmetrical stall zones (Ref 4). To explain the
transition into the unstable region of flow and to
determine the limit of stability the problem is analysed

Card 2/7

The Instability of the Flow in Compressors

by means of the variational principle of the maximum energy flux (Ref 1) and the rotor is replaced by the actuator disc. As shown in the earlier paper (Ref 1), the flow is stable relative to infinitely small disturbances if the inequality, expression (1), is satisfied, and with the finite disturbances present the flow may become unstable if the inequality (2) is satisfied. (H is the total head). To simplify the analysis it is taken that ρ = const; this does not impair the generality of the results. If the H - Q characteristic of the compressor is known, the expressions (1) and (2) represent points (1) and (2) in Fig 1. The branch of the H-Q characteristic to the right of (1) represents the absolute stability of the flow. At (1) the instability may occur if finite disturbances are present and further throttling of the grid causes transition into the unstable region of operation towards (2) where the absolute instability will occur (soft surging). To explain the phenomenon

Card 3/7

The Instability of the Flow in Compressors

of blade stall under the condition of heavy throttling it is assumed that the zones of stall are characterized by very small velocities of rate of flow, i.e. by the break down of flow through the machine. This is called the region of zero rate of flow. Assuming further (Ref 1) that $H = H(r, C_a)$, r being the radius of the actuating disc and C_a the axial velocity of the flow (the effect of the peripheral velocity C_u on the energy flow is neglected) as well as the following conditions (see Fig 2):
1) the zero rate of flow regions have an axial length l which is proportional to the width of the region in the tangential direction, 2) the boundary losses are proportional to the square of the axial velocity and the coefficient of proportionality k is known, 3) the stall regions extend right to the boundaries of the flow, 4) the stall cells are symmetrical in radial direction, 5) all stall cells are identical and occur at the tips of the blades, the equation for the mechanical energy flux (I) is introduced. Thus the problem is reduced to that of finding C_a and the

Card 4/7

The Instability of the Flow in Compressors

limits of the zero flow region giving the maximum of I for a given mass flow rate Q. This is done through Eqs (3) to (11). Hence $C_a(r)$, and the number of stall cells i can be determined (Eqs 8-10) and Eq (11) shows that to each value of $\lambda = H_{max}$, there corresponds a particular value of R_1 which is the radius dividing the stalled and unstalled flows, as shown in Fig 3. Point A, which determines R_1 is the point of intersection of the three surfaces: H, λ and ∂ HCa/∂ Ca. For inviscid fluids when there are no dissipative losses on the boundary, Eqs (12) and (13) are valid as well as Eq (11). Thus the circle of radius R_1 appears to be the boundary between the inner stable motion and the outer annulus of zero flow. Thus the process of transition when the flow is throttled may be explained as follows: with larger mass flow rates $\lambda < H_{max}$ the stable distribution of velocity at any section is defined by Eq (12). As throttling increases λ increases

Card 5/7

The Instability of the Flow in Compressors

and becomes equal to H_{max} (say at the periferal section). If H_{max} varies along the radius, then with further increase of λ an annulus of stalled flow appears, the extent of which is determined by Eq (11), and gradually extends inwardly up to $r = R_1$. If H_{max} = const along a certain length of r, then even with λ = const the rate of flow may change as a result of the symmetry of the flow being destroyed by the stall cells. Further throttling is characterized by increased λ and diminished R_1 until the whole disc is affected (with the throttle fully closed). In order to check these deductions some experiments were carried out on two stages in which rotating stall appeared at the blade tips. The details of these experiments are given in Ref (2). The effects of a step in front of the rotor and of the injection of foreign gas into the flow are shown here in Fig 5. Experiments do verify the above conclusions. For viscous fluids when the energy is dissipated on the boundaries the analysis is modified

Card 6/7

69224

S/147/60/000/01/013/018
E022/E535

The Instability of the Flow in Compressors

through Eqs (14-19) which are based on the assumption that the flow-through component of velocity at any radius $r > R_1$ satisfies the conditions shown graphically in Fig 6.
There are 7 figures and 9 references, 4 of which are Soviet, 1 German and 4 English.

ASSOCIATION: Kafedra teorii lopastnykh mashin i prikladnoy gazovoy dinamiki, Khar'kovskiy aviatsionnyy institut (Chair on the Theory of Machine Blades and Applied Gas Dynamics, Khar'kov Aviation Institute)

SUBMITTED: August 27, 1959

Card 7/7

80962
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AUTHOR: Yershov, V.N.

TITLE: Non-Uniqueness of the Solution of the Problem of the Flow Pattern in Axial Turbines

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1960, Nr 2, pp 80-87 (USSR)

ABSTRACT: In the theory of turbines, it is usually assumed that the fluid motion and the boundary conditions are stable and in consequence the problem of uniqueness of the solution does not arise. However, this assumption is not fully supported by really convincing arguments. The simplifications introduced into the boundary conditions result always in the computed flow being different from that actually taking place in the machine. In fact, for the given entry conditions and for given geometry of blades, the stream approaching the rotor may take many different forms. For each possible radial distribution of the axial velocity there will be a different energy balance. However, in each case the motion far behind the rotor will become devoid of a radial component, though the actual distribution of the stream parameters will depend on the conditions which

Card 1/4

Non-Uniqueness of the Problem of the Flow Pattern in Axial Turbines

affected the flow through the rotor. Thus, for the given entry conditions and the geometry of the blades theoretically there may be any number of different flows behind the rotor. Experiments show, however, that under those circumstances there is only one physically possible type of stable motion. Hence it follows that out of many theoretically probable types only the stable type is realized. Obviously, if the boundary conditions behind the rotor are incompatible with the stable motion, that flow will not be realized in practice. As a rule, when the types of flow actually obtained in a machine differ from those computed (or assumed) from the theoretical consideration, the difference is explained by the inaccuracy of the cascade data available or the lack of information as to the secondary effects etc. The required (i.e. computed) type of flow may only be obtained by changing the geometry of the blades or by employing some empirical rules gained through practical experience but not related to the general theory of turbines.

Card 2/4 On the other hand, if the non-uniqueness of the flow is

Non-Uniqueness of the Problem of the Flow Pattern in Axial Turbines

accepted, it is clear that these discrepancies must occur unless the required flow is stable. The author considers then the case of a single rotor in an infinitely long circular tube (Fig 1) and shows eventually that for the same entry conditions as well as the constant geometry of the blades, there are various flows possible behind the wheel (Eq (1) to (7)). The analysis neglects the viscosity and compressibility effects and assumes the axi-symmetric flow without a whirl. In the energy balance, the effect of the radial velocity is neglected and the rotor is represented by the actuator disc. Since there are eight unknown quantities (seven flow parameters and one instant of integration) and there are only seven equations from which they can be determined, it is seen that the problem is undetermined unless some additional arbitrary condition is imposed. This may be the amount of whirl behind the rotor or the form of streamlines in the meridian plane etc. Each of these additional conditions will produce a different type of motion

80962
S/147/60/000/02/009/020
E022/E407

Non-Uniqueness of the Problem of the Flow Pattern in Axial Turbines

although the entry conditions and the geometry q of the blades remain unchanged. Thus the non-uniqueness of the relation between the types of flow and the geometry blades with the given conditions at the entry is quite obvious. Fig 2 shows the effect of this arbitrarily chosen velocity of whirl at Station 3 on the computed axial velocity distribution in the radial direction at the intermediate station. There are 2 figures and 6 Soviet references.

ASSOCIATION: Khar'kovskiy aviatsionnyy institut, Kafedra teorii lopastnykh mashin i prikladnoy gazovoy dinamiki (Khar'kov Institute of Aeronautics, Chair of Theory of Bladed Engines and Applied Gas Dynamics)

SUBMITTED: December 21, 1959

Card 4/4

84049

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26.2120

AUTHORS: Yershov, V.N. and Pavlenko, G.V.

TITLE: Rotating Flow Separation in a Stationary Annular Cascade of Blades

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1960, No.3, pp.51-56

TEXT: The principle of the maximum flow of mechanical energy through the critical cross-section is the criterion of stability for the motion of a continuous medium. It defines the pattern of motion in axial turbo-machines in stable operation and permits an analysis of unstable conditions when the axial symmetry is disturbed by rotating separation. Referring to the senior author's previous work (same periodical, 1959, No.1 and 3 and 1960, No.1), the conditions for a transition from axially symmetrical flow to a rotating separation are formulated as relations between the total pressure and the axial velocity components. An analysis of the quantities involved shows that a pattern of flow with shifting zones of separation is possible not only in rotating but also in stationary cascades. Such rotating separation has not hitherto been observed in stationary annular

Card 1/3

84049
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E191/E481

Rotating Flow Separation in a Stationary Annular Cascade of Blades

cascades. A special test rig was made to observe this phenomenon. Air was blown into an annular channel where it first traversed an adjustable annular cascade of blades where it acquired a tangential component of velocity. The investigated cascade with a hub ratio of 0.82 was assembled on a cylinder somewhat larger than the internal cylinder of the annular channel so that the boundary layer formed on the inside wall was sucked away through the clearance between the two cylinders. The solidity, inlet and outlet angles of the blades in the investigated cascade remained unchanged along the radius. The blade incidence was adjustable. Low inertia condenser type pressure transmitters were used, suitable for amplification at any frequency between 0 and 2000 cps. Such transmitters were installed ahead of and behind the examined cascade and immediately behind the guide vanes. Tests were carried out with a cascade of a chord/pitch ratio of 1.2 having 38 blades of 40 mm chord and 30°, camber set at an angle of 55°. The tests were run at a Reynolds Number of about 17000. Some recordings of the fluctuating pressure are reproduced in Fig.3 and 4, showing various types of separation including rotating

Card 2/3

81049

S/147/60/000/003/008/018
E191/E481

Rotating Flow Separation in a Stationary Annular Cascade of Blades

separation zones. However, a rotating separation occurs only when the flow ahead of the cascade ensures approximately constant conditions of entry along the height of the blade. The preferred pattern of motion after the loss of stability (whether rotating separation or annular vortex) is determined by the condition of maximum power flow. The annular vortex apparently corresponds to a lower dissipation of energy and is therefore more probable. On the contrary, in rotating cascades the pattern is determined by the exchange of energy. It follows that guide vanes in a multi-stage compressor can, under certain conditions, maintain a rotating separation without appreciable attenuation. There are 5 figures and 6 references: 3 Soviet and 3 English.

ASSOCIATION: Khar'kovskiy aviatsionnyy institut Kafedra gazotermodinamiki i reaktivnykh dvigateley (Department of Gas Thermodynamics and Jet Engines, Khar'kov Aviation Institute)

SUBMITTED: January 23, 1960

Card 3/3

YERSHOV, V.N.

Multiple-valued solution of the problem of the configuration of the flow in an axial-flow turbomachine. Izv. vys. ucheb. zav.; av. tekh. 3 no. 2:80-87 '60. (MIRA 14:5)

1. Khar'kovskiy aviatsionnyy institut, kafedra teorii lopastnykh mashin i prikladnoy gazovoy dinamiki.
(Turbomachines--Aerodynamics)

20600

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26.2120

AUTHORS: Yershov, V.N., and Anyutin, A.N.

TITLE: Influence of the Radial Gap on the Boundary of Stable Operation of the Stages of an Axial Compressor

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1961, No. 1, pp. 82-86

TEXT: Investigations at the TsKTI and elsewhere have shown that increasing the radial gap in axial stages of turbo-compressors displaces the boundary of stable operation towards higher flows. It is often assumed that this is a general law but studies of instability effects cast doubt on this. The present article gives results of experimental investigations of the influence of the radial gap on the position of the boundary of stable operation of a stage of an axial compressor. The tests were made on a stage very similar in geometry to a stage K-50-1 (K-50-1) but with some difference in the shape of the symmetrical profile and with greater angles of blade installation. The blades were laminar with rounded inlet and sharpened exit edges; the curvature corresponded to within 1 to 2° of that of the mean line

Card 1/1

20600

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E194/E184

Influence of the Radial Gap on the Boundary of Stable Operation of the Stages of an Axial Compressor

of blade K-50-1 at the various radiuses. The tests were made on a stage with a runner diameter of 480 mm with peripheral speeds of the order of 70 m/sec. The boundary of unstable operation was taken as that corresponding to the commencement of rapid increase of pulsation of static pressure in the flow with reduction in the flow and was measured by a capacitative pressure pick-up. The pick-up output was applied to a bridge: the bridge out-of-balance current was amplified and rectified and applies to a mirror galvanometer from which the mean energy of pulsation E could be read. In addition to measuring the energy of pulsation of static pressure, measurements were made of the total head over the stage and the air flow through it. The apparatus was prepared by Engineers Ye.P. Butenko and G.V. Pavlenko of the Kafedra lopastnykh i prikladnoy gazovoy dinamiki, Khar'kovskogo Aviatsionnogo Instituta (Department of Bladed Engines and Applied Gasdynamics, Khar'kov Aviation Institute). Fig.1 shows variations in the energy pulsation and in stage head as function of flow for various

Card 2/7

S/147/61/000/001/009/016
E194/E184

Influence of the Radial Gap on the Boundary of Stable Operation of the Stages of an Axial Compressor

radial gaps. The solid line corresponds to $\delta = 0.5 + 0.6$ mm; the dotted line to $\delta = 1 \pm 0.05$ mm; the chain dotted line to $\delta = 2 \pm 0.05$ mm; and the chain dotted line with two dots to $\delta = 4$ mm. The graph clearly shows the extension of the region of stable operation as the radial gap is increased. Fig.2 shows the change in the boundary of stable operation for different values of radial gap. The experimental results show that care must be used in assuming that the boundary of stable operation is always displaced towards greater flows when the radial gaps in the stages of an axial compressor are increased. The experimental results do not contradict the possibility that increase in the radial gap promotes formation of more intense annular vortexes at the ends of the blades, thus increasing the axial speeds and consequently reducing the angles of attack. Fig.3 shows the distribution of axial velocity beyond the runner blade of a compressor stage as function of the radial gap. The spatial motion due to flow through the radial gap promotes smooth flow over the end sections

S/147/61/000/001/009/016
E194/E184

Influence of the Radial Gap on the Boundary of Stable Operation of the Stages of an Axial Compressor

of the blades. Fig.4 shows the distribution of total heads over a flat compressor blade near to the gap; it clearly shows the reduction in profile losses in the presence of a radial gap. Note should be made of the appreciable reduction at the periphery of the angle of absolute velocity at output from the runner (see Fig.5), which may lead to the formation of a moving breakaway zone on the blades close to the guide vanes. This graph shows change in the direction of absolute speed at discharge from the runner of the compressor for various gaps. On the basis of further and more strict consideration it may be assumed that the radial gap influences the position of the boundary of stable operation differently depending upon the special aerodynamic features of the stage.
There are 5 figures and 4 Soviet references.

ASSOCIATION: Kafedra gazotermodinamiki i reaktivnykh dvigateley Khar'kovskiy aviatsionnyy institut
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